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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/785,436	02/20/2001	Shinji Takeda	TM&K0007	8173

7590 06/04/2003
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EXAMINER

GEYER, SCOTT B

ART UNIT	PAPER NUMBER
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2829

DATE MAILED: 06/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/785,436

Applicant(s)

MAEKAWA ET AL.

Examiner

Scott B. Geyer

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 38 and 49-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 38 and 49-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 04 April 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 08/981,702.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 18.21.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The previous notification of allowable subject matter, namely claims 38 and 49-54, is withdrawn in view of newly applied reference: US Pat 6,099,678 (Kotato et al.). Accordingly, the instant office action is **non-final**.

Information Disclosure Statement

2. The references cited within the information disclosure statement, received on September 20, 2002 and entered as paper no. 18, have been considered.

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3. The information disclosure statement received on January 3rd, 2003 and entered as paper no. 21 has been reviewed and the following is noted:

3A. The information disclosure statement filed January 3rd, 2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. The following references did not have a corresponding copy with the IDS form: A-Z, AA, AC, AE-AW, BA-BG, BI-BL and BP.

3B. The applicant is hereby notified that the following references from IDS paper no. 22 are repeats from previous IDS papers already on file: AB, AD, AX, AY, AZ, BH, BM, BN and BO. As such, these references are initialed as considered, but are also 'lined-through' on the IDS paper copy.

Drawings

4. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on April 4th, 2003 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Specification

5. The specification as amended by the applicant is acceptable.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 38 and 49-54 are rejected under 35 U.S.C. 102(e) as being anticipated by Kotato et al. (6,099,678)

7A. The applied reference has a common assignee and inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this

application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

7B. As to **claim 38**, Kotato et al. teach a process for fabricating a semiconductor device, comprising the steps of attaching the semiconductor chip to a support member with a die-bonding material, and encapsulating the semiconductor chip with a resin, as is shown by figures 11(a) through 11(e). Kotato et al. also teach a filmy die bonding material made from a resin such as epoxy resin, silicone resin, acrylic resin or polyimide resin (column 2, lines 23-26). Further, Kotato et al. teach mounting a chip onto the filmy die bonding material (see figure 11(c) and 11(d)). Kotato et al. also teach attaching the chip under the following conditions: temperature of 150°C to 250°C and bonding time of 0.1 seconds to 2 seconds (column 8, lines 43-45). Kotato et al. also teach a pressure of 100 to 5000g (column 8, line 45). Although Kotato et al. does not explicitly list pressures as gf/mm², the pressures in column 8, line 45, taken in conjunction with the chip size of 8x10 mm (i.e. 80 mm²) or 10x15 mm (i.e. 150 mm²) which are listed for numerous examples in columns 11-19 provide the following pressure ranges: for a 8x10 chip with pressure of 100g to 5000g – 1.25 gf/ mm² to 62.5 gf/ mm² and for a 10x15 chip with a pressure of 100g to 5000g – 0.67 gf/ mm² to 33.3 gf/ mm². Thus Kotato et al. teach the recited conditions for attaching a chip to a filmy die bonding material.

7C. As to **claim 49**, Kotato et al. teach a filmy die bonding material as noted above in paragraph 7B. Kotato et al. further teach a water absorption rate less than 1.5 volume % (column 9, lines 25-27).

7D. As to **claim 50**, Kotato et al. teach a filmy die bonding material as noted above in paragraph 7B. Kotato et al. further teach a residual volatile component in an amount not more than 3.0% by weight (column 9, lines 31-32).

7E. As to **claim 51**, Kotato et al. teach a filmy die bonding material as noted above in paragraph 7B. Kotato et al. further teach the modulus of elasticity of 10 Mpa or less at a temperature of 250°C (column 6, lines 1-5).

7F. As to **claim 52**, Kotato et al. teach a filmy die bonding material as noted above in paragraph 7B. Kotato et al. further teach a void volume of 10% or less within the die-bonding material and an interface between the die-bonding material and an associated support member (column 9, lines 35-40).

7G. As to **claim 53**, Kotato et al. teach a filmy die bonding material as noted above in paragraph 7B. Kotato et al. further teach the die-bonding material having a peel strength of 0.5 kgf/5x5 mm chip or above when the chip has been bonded to the support member (column 9, lines 41-45).

7H. As to **claim 54**, Kotato et al. teach a filmy die bonding material as noted above in paragraph 7B. Kotato et al. further teach the die-bonding material having a planar dimension not larger than the dimension of the chip and not having a protrusion outward from a region of the chip at a stage where the chip has been bonded to the support member (table 8, samples 3-5).

7I. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Conclusion

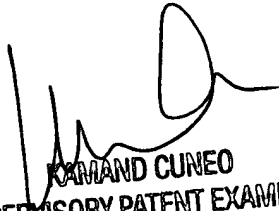
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott B. Geyer whose telephone number is (703) 306-5866. The examiner can normally be reached on weekdays, between 10:00am - 6:30pm. E-mail: scott.geyer@uspto.gov

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (703) 308-1233. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SBG

SBG
May 21, 2003


KAMAND CUNEO
SUPERVISORY PATENT EXAMINER
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